

What is claimed is:

1 1. A load coil for insertion along a local loop to counteract a parallel capacitance of
2 the local loop to improve transmission of POTS-band signals and permit passage of DSL
3 signals, the load coil comprising:

4 a coupled inductor having first and second windings wrapped about an
5 inductor core, each winding having an input and an output, the coupled inductor
6 configured for disposal along the local loop;

7 a first capacitive element disposed between the input of the first winding and the
8 input of the second winding; and

9 a second capacitive element disposed between the output of the first winding and
10 the output of the second winding.

1 2. The load coil of claim 1, wherein the first and second capacitive elements each
2 have a capacitance in the range of 10 nF to 82 nF.

1 3. The load coil of claim 1, wherein the first and second capacitive elements each
2 have a capacitance in the range of 5 nF to 50 nF.
3

1 4. The load coil of claim 1, wherein the coupled inductor has an inductance of about
2 66 mH.

1 5. The load coil of claim 1, wherein the first and second windings have an inter-
2 winding capacitance and the first and second capacitances increase the effective inter-
3 winding capacitance of the first and second windings by at least a factor of 5.

1 6. A load coil for insertion along a local loop to condition the loop for the
2 transmission of POTS signals and permit passage of DSL signals with low attenuation,
3 the load coil comprising:

4 a coupled inductor having first and second windings wrapped about an inductor
5 core, each winding having an input and an output, the coupled inductor configured for
6 disposal along the local loop;

7 a first capacitive element disposed in parallel with the first winding; and

8 a second capacitive element disposed in parallel with the second winding.

1 7. The load coil of claim 6, wherein the first and second capacitive elements each
2 have a capacitance in the range of 5 nF to 50 nF.

1 8. The load coil of claim 6, wherein the first and second capacitive elements each
2 have a capacitance in the range of 10 to 82 nF.

1 9. The load coil of claim 6, wherein the coupled inductor has an inductance of about
2 66 mH.

3

1 10. The load coil of claim 6, wherein the first and second windings each have an
2 intra-winding capacitance and the first and second capacitances increase the effective
3 intra-winding capacitance of the first and second windings by at least a factor of 120.

1 11. A system for transmitting DSL and POTS signals over a local loop, the system
2 comprising:

3 a first load coil for disposal along the local loop to condition the POTS signals,
4 the first load coil including a coupled inductor and multiple capacitive elements for
5 increasing an effective capacitance of the coupled inductor to improve transmission of
6 DSL signals across the first load coil;

7 a first DSL signal repeater for disposal along the local loop in series with the first
8 load coil to amplify the DSL signals, the first DSL signal repeater including a second
9 load coil for conditioning POTS signals passing therethrough.

1 12. The system for transmitting DSL and POTS signals according to claim 11,
2 wherein the coupled inductor has first and second windings wrapped about an inductor
3 core, each winding having an input and an output, the multiple capacitive elements
4 further comprising:

5 a first capacitive element being disposed between the input of the first winding
6 and the input of the second winding; and

7 a second capacitive element disposed between the output of the first winding and
8 the output of the second winding.

1 13. The system for transmitting DSL and POTS signals according to claim 11,
2 wherein the coupled inductor has first and second windings wrapped about an inductor
3 core, the multiple capacitive elements further comprising:
4 a first capacitive element disposed in parallel with the first winding; and
5 a second capacitive element disposed in parallel with the second winding.

1 14. The system for transmitting DSL and POTS signals according to claim 11,
2 wherein each capacitive element has a capacitance between 10 nF – 82 nF.

1 15. The system for transmitting DSL and POTS signals according to claim 11,
2 wherein each capacitive element has a capacitance between 5 nF – 50 nF.

1 16. A load coil for disposal along a local loop to condition POTS signals and to
2 permit passage of DSL signals as the POTS and DSL signals traverse the local loop, the
3 load coil comprising:
4 inductive means for conditioning POTS signals as they traverse the local loop;
5 capacitive means coupled to the inductive means for permitting the DSL signals
6 to pass across the load coil.

- 1 17. A system for transmitting DSL and POTS signals over a local loop, the system
2 comprising:
3 load coil means positioned along the local loop, the load coil means comprising
4 inductive means for conditioning POTS signals as they traverse the local loop and
5 capacitive means coupled to the inductive means for facilitating passage of DSL signals
6 across the load coil; and
7 DSL signal amplification means positioned along the local loop for amplifying
8 DSL signals as they traverse the local loop.